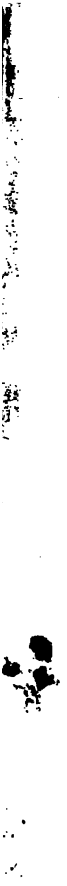

(Andrews
YDC
GANSEVOORT-LANSING
COLLECTION



A

COMPEND

OF

LOGICK,

FOR THE USE OF THE

UNIVERSITY

OF

PENNSYLVANIA.

By JOHN ANDREWS, D. D.

Vice Provost of the University.

PHILADELPHIA:

PRINTED BY SUDD AND BARTRAM,

OR THOMAS DOBSON, AT THE STONE HOUSE,

NO. 41, SOUTH SECOND STREET.

1801.

Peter Gauwood

PREFACE.

OF the few treatiſes of Logick which the author of the following compilation has peruſed, Duncan's has always appeared to him to be the beſt. But this treatiſe, however excellent, is for the moſt part too diffuſive, and in ſome places, perhaps, even too ſcientifick, for the uſe of young beginners; at the ſame time that it omits a number of particulars, of which (as they are generally

rally taught in the ſchools, and occaſionally alluded to in converſation as well as books) a teacher would not wiſh his pupils to be wholly ignorant. To obviate theſe objections, and yet retain as much as poſſible the features of Duncan, is the aim of the preſent Compend; which was compoſed ſome years ago, and is now printed that the claſſes, for whoſe uſe it was intended, may no longer have the trouble of tranſcribing it.

HOWARD

HOWARD

COMPEND

OF

LOGICK.

LOGICK is that ſcience which explains the operations of the human underſtanding, in acquiring and communicating knowledge. And as theſe have been uſually ſtated to be four,—APPREHENDING, JUDGING, REASONING, and ARRANGING our THOUGHTS in a ſuitable manner; ſo Logick, which treats of theſe operations, is uſually divided into four parts.

PART I.

Of Simple Apprehenſion.

SIMPLE apprehenſion being that o
ration of the mind by which it is furn
ed with ideas, a treatiſe on it, is, i
great meaſure, a treatiſe on ideas,
on the procedure of the mind with
ſpect to them: and it is alſo a treatiſe
words and definitions; becauſe, with
theſe, we ſhould often be at a loſs b
in acquiring and communicating our ide
The firſt part, therefore, of Logick, m
be divided into two chapters: One tre
ing of ideas; and the other, of ter
and definitions.

CH

CHAP. I.

Of Simple Apprehenſion, and the faculties by which it is exerted:—Of Ideas, or the firſt principles of Knowledge:—Of the ſources from which they are derived; and of the different ſorts of them.

SIMPLE APPREHENSION is that operation of the underſtanding by which it attends to, and notices, the ſeveral objects that are preſented to it. It is called *ſimple* apprehenſion, becauſe it is employed in the *mere* apprehending or noticing of things: without comparing them with each other, or aſſigning to them any attributes; which is the province of judgment. And by this operation it is, that the mind, as we have already obſerved, is furniſhed with ideas: for without

without previouſly attending to, and noticing, the objects that are preſented to it, it is impoſſible that the mind ſhould ever have any ideas of them; or, in other words, be able to repreſent to itſelf the appearances which they exhibit.

In performing this operation, two faculties are made uſe of, which are quite diſtinct from each other; SENSATION, and CONSCIOUSNESS. If the object occurring be an external thing, the mind perceives it, and its qualities, by means of the ſenſes; and the power of doing this is called THE FACULTY OF SENSATION: if it be an internal thing, that is, if it be any operation or emotion of the mind, the mind attends to and notices it, without making uſe, ſo far as we know, of any bodily organ; and it is this power, which

which we call THE FACULTY OF CONSCIOUSNESS.

The term IDEA is derived from the Greek word εἶδος, I ſee; and by ideas are meant, the views which the mind takes of things, when they are no longer preſent. In the language of the ſchools, ideas are the types or reſemblances of things; and things themſelves are the archetypes, or originals of which the reſemblances are made. When an external object is preſent, and attended to by my mind, I am ſaid to PERCEIVE it; and when my mind is engaged in any operation, or agitated by any paſſion or emotion, I am ſaid to be CONSCIOUS of that operation, or of that paſſion or emotion: but when the external object is no longer preſent, ſo as to affect the organs of ſenſe,—or when the operation which had engaged my mind has ceaſed

to

to engage it, or the paſſion or emotion, by which I was agitated, now agitates me no more,—I am capable of thinking of the object which I before perceived, or of the operation or emotion of which I was conſcious, and of repreſenting to myſelf the appearances which they reſpectively exhibited; and when I do ſo, I am ſaid to have IDEAS of them.

It has been ſtated, that all external things and their qualities are noticed by means of the ſenſes; and internal things, that is, the operations and emotions of the mind, by conſciouſneſs: now all the objects of which we have any knowledge, are either external things and their qualities, or the operations and emotions of the mind: and, conſequently, all our ideas, how numerous ſoever they may be, are derived from theſe two ſources.

As

As ideas are the firſt elements of all our knowledge; ſo ſenſation and conſciouſneſs are the firſt of our intellectual faculties which are exerted by us. And, again, we can have no ideas of the operations of our own minds until they are exerted; nor can they be exerted, before the mind is furniſhed with ideas, about which to employ them: but the ideas which give the firſt employment to our faculties, are evidently the ideas of external things, communicated by the ſenſes: whence it is plain, that all our knowledge muſt begin in ſenſation; and that the operation of this faculty is prior even to that of conſciouſneſs.

Ideas are either SIMPLE or COMPLEX. A ſimple idea is an idea of a ſimple object; that is, of an object without parts: or it may be defined, an idea which cannot be reſolved into two or more ideas. A

complex

complex idea is an idea of a complex object; that is, of an object that conſiſts of parts: or, it is an idea, that may be reſolved into two or more ideas.

To the former of theſe claſſes belong all our ideas of qualities, and of the operations and emotions of our own minds. The qualities of external things are called SENSIBLE QUALITIES; and may be reduced to five general heads, according to the ſeveral ſenſes which are affected by them. Light and colours are perceived by the eye; ſounds, by the ear; taſtes, by the tongue; ſmells, by the noſe; and heat and cold, roughneſs and ſmoothneſs, hardneſs and ſoftneſs, &c., by the touch. Extenſion, figure, reſt, and motion, we perceive by two ſenſes; ſeeing, and feeling. To which may be added, that our ideas of pleaſure and pain, of power, exiſtence, unity,

and

and ſucceſſion, are conveyed into our underſtandings both by ſenſation and conſciouſneſs; that is, both by the action of objects around us, and the conſciouſneſs of what we feel within.

To this general view of our ſimple ideas may be ſubjoined the *two* following *obſervations*. The *firſt* is, that ſimple ideas can only be conveyed into the mind by the proper channels and avenues provided by nature; inſomuch that if we are deſtitute of any of thoſe inlets, all the ideas, thence ariſing, are abſolutely loſt to us; nor can we, by any quickneſs of underſtanding, find a remedy for this want. A man born blind is incapable of ideas of light and colours; as one, who is born deaf, can form no conception of ſounds. And hence it appears, that theſe our ſimple ideas are juſt ſuch as nature furniſhes them, and

 have

have no dependence on our will: we can neither deſtroy them when in the underſtanding; nor faſhion or invent any new one, not taken in by the ordinary means of apprehenſion. So that the utmoſt bounds of human knowledge cannot exceed the limits of our ſimple ideas and their various combinations. The *ſecond* is, that though the mind, in multiplying its conceptions, can avail itſelf of no other materials than thoſe which are furniſhed by ſenſation and conſciouſneſs; yet, as it has a power of combining theſe materials in a great variety of ways, it finds itſelf in poſſeſſion of an inexhauſtible treaſure of ideas, ſufficient to employ it to the full extent of its powers.

Complex ideas are of *two ſorts*: THOSE WHICH ARE CONVEYED INTO THE MIND BY THINGS REALLY EXISTING IN NATURE;

TURE; and THOSE WHICH ARE THE WORKMANSHIP OF THE MIND ITSELF.

Things really exiſting in nature are all compriſed under the general name of SUBSTANCES; which are either material or immaterial. And the uſual definition of a ſubſtance is, that it is a thing which ſubſiſts of itſelf, without dependence upon any created being, and is the ſubject of MODES. The idea, for example, of a material ſubſtance includes in it the idea of a thing ſubſiſting of itſelf; and the ideas of its *qualities*, by which only, as we find by experience, it is made known to us: the idea of an immaterial ſubſtance, in like manner, includes the idea of a thing ſubſiſting of itſelf; and the ideas of its *operations*, by which only, as we alſo find by experience, *it* is made known to us. Whence it appears, that, whether the ſubſtance be material or immaterial,

material, the thing itſelf is unknown to us; and that they are the qualities only of bodies, and the operations of mind,—or, in other words, the modes only or attributes of things,—with which we are acquainted.

Modes are divided into ESSENTIAL and ACCIDENTAL. An eſſential mode is that which cannot be ſeparated from its ſubject, without deſtroying the nature of the ſubject: an accidental mode is that which may be ſeparated from its ſubject, and the nature of its ſubject remain the ſame as it was before. Roundneſs, for example, is an eſſential mode of a bowl; becauſe a thing cannot be a bowl without being round: but any particular colour is an accidental mode of a bowl; becauſe if a bowl, or a ball, which is now blue, were to be painted white, it would ſtill be a bowl as much as ever.

Eſſential

Eſſential modes are divided into PRIMARY and SECONDARY. A primary eſſential mode is that which is derived from no other mode, and conſtitutes a thing what it is. A ſecondary eſſential mode is that, which, although inſeparable from its ſubject, is derived from ſome other mode. Thus roundneſs is a primary eſſential mode of a bowl; becauſe we do not conceive of it as derived from any other quality of a bowl: but volubility, or aptneſs to roll, is a ſecondary eſſential mode of a bowl; becauſe it ariſes from another quality of it, that is, its roundneſs. The primary eſſential mode has been called DIFFERENTIA, or the difference; the ſecondary eſſential mode, PROPRIUM, or a property; and the accidental mode, ACCIDENS.

Complex idea's which are the workmanſhip of the mind are divided into COMPOUND,—

POUND,—UNIVERSAL, GENERAL, or ABSTRACT,—and RELATIVE.

Compound ideas are thoſe, which the mind forms by putting two or more ideas together. Theſe combinations are ſometimes made by adding the *ſame* idea to itſelf: thus, by adding the idea of unity to itſelf repeatedly, and retaining the ſeveral amounts in our minds, we come by all the different combinations of numbers: in the ſame way are formed the different ideas of yards, perches, furlongs, miles, leagues, &c.; alſo thoſe of weeks, months, years, &c. But, more frequently, our compound ideas are formed by combining ideas of a *different* kind together. The compoſer of muſick, for example, forms the idea of a tune which he is compoſing,—and the mechanick, the idea of a machine which he is projecting,—by bringing together, in

in the former caſe, a number of notes—and, in the latter, of parts,—that are different from each other.

An abſtract, univerſal, or, as it is more commonly called, a general idea, is an idea that will apply to ſeveral individuals, or to ſeveral claſſes of individuals. If it apply to individuals only, the claſs, which correſponds to it, and comprehends individuals, is termed a SPECIES; if to ſeveral claſſes of individuals, the claſs which correſponds to it, and comprehends theſe ſeveral claſſes of individuals, is termed a GENUS. The formation of theſe ideas depends on a power which the mind poſſeſſes of removing, from its idea of any object, what is peculiar to that object; from its idea of an individual, whatever is peculiar to that individual; and from its ideas of a ſpecies, whatever is peculiar to that ſpecies:

ſpecies: a power, which, by the writers on the human mind, is called THE FACULTY OF ABSTRACTION. And hence it appears, that it is not without reaſon, that our general ideas are ranked among thoſe which are the workmanſhip of the mind, and have nothing in nature to which they correſpond.

But that this may be better underſtood, it will be worth while to take a more diſtinct view of the proceſs of the underſtanding in the formation of theſe ideas. All the things in nature are *individual* things: that is, every thing is itſelf, and one; and not another, and more than one. But when we come to take a view of the ſeveral individuals, and obſerve that a number of them reſemble each other in one or more particulars of importance, ſelecting the particulars in which they agree, and removing

ing all thoſe in which they diſagree, we frame to ourſelves a general idea applicable to ſeveral individuals; that is, to a particular ſpecies. Thus certain animals being found to reſemble each other in having an erect form, and in being endowed with the faculties of reaſon and ſpeech, we take theſe important particulars which are common to them all, and excluding what is peculiar to each, we form a general idea, to which we give the name of *man*; and this name belongs equally to every individual who is poſſeſſed of the form and faculties above mentioned. This is the firſt ſtep or gradation in the forming of abſtract ideas, when the mind confines itſelf to the conſideration of individuals, and frames an idea that comprehends ſuch only under it.

Again: having ranged things into ſpecies, according to the reſemblance found

among them, we begin to compare the ſeveral ſpecies with each other; and often obſerve, in theſe alſo, a reſemblance, in one or more particulars of importance. Upon this, throwing out all the particulars in which they diſagree, and retaining thoſe only, in which there is a reſemblance, we frame a ſtill more general idea, comprehending under it ſeveral ſpecies. Thus, a ſparrow, a hawk, an eagle, &c., are diſtinct ſpecies of birds: They nevertheleſs reſemble each other in being covered with feathers, and provided with wings which bear them through the air: Out of theſe particulars we form a new idea, and appropriating to it the name *bird*, mark by that word a higher claſs, which comprehends in it all the former. This higher claſs, which extends to ſeveral ſpecies of things, is called a genus; and is the ſecond ſtep which

which the mind takes in the formation of it's general ideas.

But, in riſing from particulars to generals, the mind does not confine itſelf to one or two gradations. For when we have reduced things into ſpecies, and theſe again into genera, theſe genera are often found to reſemble each other in ſome particulars, which being combined together into one idea includes a new and more comprehenſive claſs of things. Thus bird is a genus, comprehending the ſeveral ſpecies of ſparrow, hawk, eagle, &c.: fiſh is a genus, including the ſeveral ſpecies of living creatures which inhabit the waters, as dolphins, ſturgeons, &c.: beaſt or quadruped, and inſect, are alſo genera, which extend to many ſpecies: yet all theſe different genera have this in common, that they are provided with organical bodies fitted for the purpoſes of life

life and ſpontaneous motion. An idea, therefore, made up of theſe particulars only, will comprehend all the genera above mentioned; and the word, *animal*, by which it is expreſſed, becomes a general name for the ſeveral creatures endued with life, ſenſe, and ſpontaneous motion.

Further: all things, animate and inanimate, reſemble each other in this reſpect, that they are created; whence we refer them to a genus ſtill higher, which may be called *creature:* a name, which belongs equally to every genus and ſpecies of created things, and to each individual thing that is created.

And further ſtill: all things, whatever, exiſt, or are; and in this reſpect are ſaid to reſemble each other: in which view we refer them to a genus ſtill higher, called

called *Being*, which is the higheſt poſſible genus.

In a ſeries of genera, riſing in this manner one above another, each ſucceſſive genus is called, in the ſchools, a GENUS GENERALIUS, or HIGHER GENUS; and the genus by which each ſeries is terminated, they diſtinguiſh by the name of GENUS GENERALISSIMUM. In like manner, the ſeveral genera, comprehended under a higher genus, are, in reſpect to it, conſidered as ſpecies; and as theſe have alſo ſpecies under them, the inferior diviſions are, for the ſake of diſtinction, termed SPECIES SPECIALIORES, or LOWER SPECIES. And the loweſt ſubdiviſions of all, comprehending only individuals, (which, as has been already mentioned, conſtitute the proper ſpecies) are, in reſpect to the ſeries, denominated the SPECIES SPECIALISSIMÆ. All that lie between

between theſe and the higheſt diſtribution of things, or genus generaliſſimum, are the INTERMEDIATE GENERA AND SPECIES; which are termed ſucceſſively genus generalius, or ſpecies ſpecialior, according as we conſider them in the aſcending, or deſcending, ſeries of our ideas; or, to ſpeak in the language of logicians, according to their aſcent, or deſcent, in the *linea prædicamentali*.

And here we may take occaſion to mention merely, that, by the ancient writers of logick, a genus generaliſſimum, with all its diviſions and ſubdiviſions, was termed a CATEGORY, OR PREDICAMENT. And as Ariſtotle fancied, that all the things in nature might be reduced to *ten* general heads, or claſſes, namely, *ſubſtance*, *quantity*, *quality*, *relation*, *action*, *paſſion*, *place*, *time*, *ſituation*, and *cloathing*;

cloathing; theſe have been called THE TEN CATEGORIES.

It is of more importance to remark, that, though many of our general ideas are evidently combinations of different ſimple ideas, and in that view of them are included in the claſs of compound ideas, we are carefully to diſtinguiſh between an idea as it is compound, and as it is general or univerſal.

An idea is termed compound, with reſpect to the ſeveral ideas which are combined in it; general or univerſal, with reſpect to the individuals, ſpecies, or genera, to which it extends. Thus the idea of a bird, conſidered as a compound idea, includes life, ſenſe, ſpontaneous motion, a covering of wings, feathers, &c.: but, as a general idea, it denotes the ſeveral ſpecies of the feathered creation, the hawk, the eagle, the lark, &c.;

to

to all which it extends with equal propriety. In the former caſe, the ſeveral parts of the compound idea are called its COMPREHENSION; in the latter, the genera, the ſpecies, and the individuals, to which the univerſal idea may be applied, are called its EXTENSION.

The third and laſt diviſion, of thoſe complex ideas which are the workmanſhip of the mind, conſiſts of our relative ideas. A relative idea, is an idea which ariſes from the comparing of things, one with another. For the mind is not limited to the conſideration of objects, as they are in themſelves merely; but can examine them as connected with other things brought into view at the ſame time. And when it does ſo, and thence acquires new ideas, the ideas thus acquired are called relative ideas; and make, as is ſuppoſed, the largeſt claſs of our ideas. For every

ſingle

ſingle object will admit of almoſt innumerable compariſons with others, and, in this way, may become a very plentiful ſource of ideas to the underſtanding. Thus, if we compare one thing with another in reſpect to bulk, we get the idea of *greater* and *leſs*, or of *equality*: if, in reſpect of time, of *older* and *younger*: and ſo of other relations, which we can purſue at pleaſure, and almoſt without end.

So much, with reſpect to ideas; which are the ſubject of the firſt chapter. We have ſtated, that all our ſimple ideas are conveyed into the underſtanding either by ſenſation or conſciouſneſs; and are the materials out of which all others are formed: that the mind, though it has no power over theſe, either to faſhion or to deſtroy them, can yet combine them in an infinite number of ways; and that

from their various combinations reſult all our complex ideas: that theſe complex ideas are of two principal kinds; firſt, ſuch as are derived from without, and repreſent thoſe combinations of ſimple ideas that have a real exiſtence in nature,—of which ſort are all our ideas of ſubſtances; ſecondly, ſuch as are formed by the mind itſelf, arbitrarily uniting and putting together its ideas: and that, as theſe laſt make by far the largeſt claſs, and comprehend all thoſe ideas which may be properly termed our own, as being the workmanſhip of the underſtanding; ſo they fall very naturally under three diſtinct heads. For either the mind combines ſeveral ſimple ideas together in order to form them into one complex idea, in which the number and quality of the ideas united are principally conſidered; in which way we become

poſſeſſed

poſſeſſed of all our compound ideas: or it fixes upon any one of its ideas, whether it be a ſimple or compound idea, or an idea of a ſubſtance, and leaving out the circumſtances of time, place, real exiſtence, and whatever renders it particular, conſiders what it has in common with others, and of that makes an idea which will apply to all of a kind; whence our abſtract or univerſal ideas are derived: or, laſtly, it compares things one with another, examines their mutual connections, and thereby furniſhes itſelf with a new ſet of ideas, known by the name of relations; which, as has been already remarked, make by no means the leaſt important claſs of our ideas.

CHAP.

CHAP. II.

Of Terms and Definitions.

Having ſeen, in the preceding chapter, how our ideas are acquired; let us now proceed to examine how they are communicated. Ideas themſelves are not viſible, nor can they be perceived by any outward ſenſe. But God, deſigning us for ſociety, and to have fellowſhip with thoſe of our kind, has provided us with organs fitted to frame articulate ſounds, and given us alſo a capacity of uſing thoſe ſounds, or TERMS, as ſigns of ideas. Hence our ideas, which otherwiſe muſt have been locked up, as it were, in our own breaſts, are brought forth and made to appear. For, any number of men having agreed to make uſe of the ſame ſounds

ſounds as ſigns of the ſame ideas, it is evident, that the repetition of theſe ſounds muſt excite the ſame ideas in them all. When, for inſtance, any train of ideas takes poſſeſſion of my mind, if the terms, or ſounds, by which I am wont to expreſs them, have been annexed, by thoſe with whom I converſe, to the very ſame ſet of ideas, nothing is more evident, than that by repeating thoſe terms, according to the tenor of my ideas, I ſhall raiſe in their minds the ſame train that has taken poſſeſſion of my own. Hence, by barely attending to what paſſes within themſelves, they will alſo become acquainted with the ideas in my underſtanding, and have them in a manner expoſed to their view.

So that we here clearly perceive how a man may communicate his ſentiments to another; provided the language, in which

which he converſes, be copious enough to contain words appropriated to all his ideas; and provided the perſon, to whom he ſpeaks, is poſſeſſed of the ſame ideas which he expreſſes, and has been accuſtomed to connect them with the ſame terms.

But as this is not always the caſe, and as we may often have occaſion to communicate to others a new idea,—that is, an idea that has never yet entered their minds, and which conſequently they cannot as yet have connected with any term; it may be aſked, how ſuch an idea can poſſibly be communicated to them, by a term to which they have never annexed any idea, and which of courſe cannot be to them the ſign of an idea.

This appears to be a difficulty; and, to ſolve it, it will be neceſſary to obſerve, firſt, that no word can be to any man the

the ſign of an idea, till that idea comes to have a real exiſtence in his mind. For words being only ſo far intelligible, as they denote known ideas; where they have none ſuch to anſwer to them, there they are plainly ſounds without ſignification, and of courſe convey no information. But no ſooner are the ideas, to which they belong, produced in the underſtanding, than, finding it eaſy to connect them with the eſtabliſhed words, we can join in any agreement of this kind made by others, and enjoy the benefit of their diſcoveries. The firſt thing, therefore, to be conſidered, is, how theſe ideas may be conveyed into the mind, that, they being there, we may learn to connect them with the appropriated ſounds, and ſo become capable of underſtanding others when they make uſe of theſe ſounds in laying open and communicating

cating their thoughts. Now to comprehend diſtinctly how this may be done, it will be neceſſary to call to mind the before mentioned diviſions of our ideas into ſimple and complex. And firſt, as to our ſimple ideas, it has been already obſerved, that they can find no admiſſion into the mind, but by the original fountains of knowledge; ſenſation, and conſciouſneſs. If therefore any of theſe have as yet no being in the underſtanding, it will be impoſſible by words to excite them there. A man, who had never felt the impreſſion of heat, could not be brought to comprehend that ſenſation, by any thing which we could ſay to explain it. If we would produce the idea in him, it muſt be by applying the proper object to his ſenſes, and bringing him within the influence of a hot body. When this is done, and experience has taught him the

ſenſation,

nſation, to which men have annexed
e name, *heat*, this term then becomes
him the ſign of that idea; and he
enceforth underſtands the meaning of
e term; which, before, all the words
the world would not have been ſuf-
ient to convey into his mind. The
ſe is the ſame with reſpect to light and
lours: a man born blind, and by this
s fortune deſtitute of the only convey-
ce for the ideas of theſe objects, can never
brought to underſtand the terms by
hich they are expreſſed. The reaſon
plain: they ſtand for ideas which have
existence in his mind; and as the
gan, appropriated to their reception, is
anting, all other contrivances are vain,
or can theſe ideas, by any force of de-
ription, be excited in him.—But, with
complex ideas, it is quite otherwiſe.
ſe theſe being no other than certain

combinations of ſimple ideas put tog
in various forms; if the ſimple ideas,
of which the complex ideas are n
have already got admiſſion into th
derſtanding, and the terms ſerving t
preſs them be known, it will be eaſy
enumerating the ſeveral ideas includ
the combination, and marking the
and manner in which they are unite
raiſe any complex idea in the mind.
the idea anſwering to the term, *rain*
may be readily excited in the ima
tion of another, who has never ſee
appearance itſelf, by deſcribing th
gure, ſize, poſition, and order of
lours; if we ſuppoſe theſe ſeveral ſi
ideas, with their names, ſufficiently k
to him.

The anſwer, then, to the queſtion
poſed above, is now ſufficiently obv
If the new idea, which we wiſh to

mun

municate to others, be a ſimple idea, we muſt refer them to thoſe objects in nature whence the idea is to be obtained: but, if it be a complex idea, its meaning may be explained by enumerating the ideas included in it; that is, by defining it.

And here we ſee the nature and uſe of definitions. They are uſed to unfold a complex idea; and two things are required in them: firſt, that all the ſimple ideas, out of which the complex one is formed, be diſtinctly enumerated; and, ſecondly, that the order and manner of combining them be clearly explained. Where a definition has theſe requiſites, nothing is wanting to its perfection; becauſe every one, who reads it, and underſtands the terms, ſeeing at once what ideas he is to join together, and alſo in what manner, can, at pleaſure, form,

in

in his own mind, the complex idea anſwering to the term defined.

But this rule, though it extends to all poſſible caſes, and is indeed that alone to which we can have recourſe where any doubt or difficulty ariſes, it is not, however, neceſſary, or even expedient, to practiſe in every particular inſtance. Many of our ideas are extremely complex; and, of courſe, to enumerate all the ſimple ideas, out of which they are formed, would be a very troubleſome and tedious work. For which reaſon, logicians have eſtabliſhed a certain compendious mode of defining; of which, it may not be amiſs to give here a ſhort account. If the thing to be defined be a ſpecies, they give the NEAREST GENUS and the SPECIFICK DIFFERENCE; or, in other words, they refer it to its neareſt genus, and then add thoſe circumſtances that make the ſpecies, which

which they are defining, to differ from every other ſpecies belonging to that genus. For, as the idea of a genus is formed by dropping what is peculiar to each of the ſeveral ſpecies referred to it, and retaining thoſe particulars which they all poſſeſs in common; ſo, on the other hand, by adding to the genus what is peculiar to any one of the ſpecies included in it, we form an adequate idea, and give a complete definition, of that ſpecies. In like manner, if the thing to be defined be an individual, the logical definition will conſiſt of the THE SPECIES and the NUMERICAL DIFFERENCE; or, in other words, of the ſpecies, and thoſe particulars that diſtinguiſh the individual which we are defining, from every other individual belonging to that ſpecies. For, as the idea of a ſpecies is formed by dropping what is peculiar to the ſeveral individuals

dividuals referred to it, and retaining thoſe particulars only which they poſſeſs in common; ſo, by adding to the ſpecies what is peculiar to any one of the individuals included in it, we form an adequate idea, and give a complete definition, of that individual.

We ſhall conclude with obſerving, that definitions have been diſtinguiſhed into two kinds; the DEFINITION OF THE NAME, and the DEFINITION OF THE THING. When the term to be defined, refers to the idea of the writer or ſpeaker, and the definition is deſigned to ſhow what idea *he* connects with a certain term, it is a definition of the *name*. And ſuch definitions are ſaid to be arbitrary; becauſe, as words are not natural, but merely artificial, ſigns of ideas, every man is at liberty to annex to a term what idea he pleaſes. But where the reader,

or

or hearer, is ſuppoſed to know that a certain term is connected with a particular idea, and where the deſign of the definition is to unfold that idea, that the nature of the thing of which it is the type or reſemblance, may be fully underſtood, it is a definition of the *thing*. And ſuch a definition is not arbitrary, becauſe the idea of any thing ſhould be conformable to that thing, and the definition conformable to the idea.

PART II.

Of Judgment.

ALL our knowledge may be reduced to two heads; our ideas of things, and the judgments which we form with reſpect to

to them. Of our ideas, and of terms and definitions by which they are communicated, we have already treated. We come now to ſpeak of our JUDGMENTS; and of PROPOSITIONS, by which they are communicated. And here it will be proper to conſider, firſt, the ſeveral grounds of human judgment; and, ſecondly, the different ſorts of propoſitions.

CHAP. I.

Of the GROUNDS *of human judgment; or, in other words, of* THE DIFFERENT SORTS OF EVIDENCE.

JUDGMENT is that operation of the mind by which we compare two or more ideas together, with a view to determine whether they agree or diſagree. But although,

although, in every act of judgment, it is neceſſary to bring two or more ideas together, and place them, as it were, over againſt each other; yet, the mere comparing of two ideas together is not the evidence of their agreement or diſagreement. What then, it may be aſked, is this evidence? or rather, (as one ſort of truth is ſupported by one ſort of evidence, and another by another), What are the different ſorts of evidence?

To aſſiſt us in judging of this ſubject, it will be neceſſary to obſerve, that all the objects of the human underſtanding are, either *abſtract notions of quantity and number*, or *things really exiſting*. Of the relations of theſe abſtract notions, all our knowledge is certain; being founded on mathematical evidence. Of things really exiſting, we judge, either from our own experience, or from the experience of

other men. Judging of real exiſtence from our own experience, we attain either *certainty* or *probability*. Our knowledge of real things is certain, when ſupported by the evidence of external ſenſe, conſciouſneſs, and memory; and when from effects we infer cauſes. Our knowledge of real things is probable, when, from facts whereof we have had experience, we infer facts of the ſame, or a ſimilar, kind, not experienced. Judging of real exiſtence from the experience of other men, we have the evidence of their teſtimony. And thus it appears, that *all ſorts of evidence* productive of real knowledge, *may be reduced to ſeven:* 1. *Mathematical evidence.* 2. The evidence *of external ſenſe.* 3. The evidence *of conſciouſneſs.* 4. The evidence *of memory.* 5. That evidence which we have, when

from

from effects we infer cauſes. 6. The evidence *of testimony.* 7. *Probable* evidence.

Of MATHEMATICAL EVIDENCE there are two ſorts; *intuitive*, and *demonſtrative.* Mathematical evidence is intuitive, when, from the very nature of the ideas compared, it appears, at firſt view, that they muſt neceſſarily agree or diſagree. Mathematical demonſtrative evidence is *direct*, or *indirect.* When a concluſion is inferred from principles which render it neceſſarily true, the demonſtration is direct. When, by ſuppoſing a given propoſition falſe, we are neceſſarily led into an abſurdity, it is called indirect, apagogical, or *ducens in abſurdum.* Now that muſt be true, which we cannot, without abſurdity, ſuppoſe to be falſe. And therefore both ſorts of demonſtration are equally good, becauſe equally productive of abſolute certainty.

All

All mathematical proof is founded upon axioms, or ſelf-evident propoſitions, *the contraries of which are inconceivable.* And this ſort of proof ſeems to be peculiar to the ſciences that treat of quantity and number; and therefore, in no other ſcience is the mathematical method of proof to be expected. For, in the other ſciences, in moſt of them at leaſt, truth and its contrary are equally conceivable. That Julius Cæſar died a natural death is as eaſy to be conceived, as that he was murdered in the ſenate-houſe. I feel a hard body, I do not feel a hard body; I ſee a white colour, I do not ſee a white colour; are all equally conceivable: and yet may be either true or falſe according to circumſtances. We may conceive that the ſun, after ſetting to-night, will never appear again, or that any particular man will never die: and yet we conſider death as

is what muſt inevitably happen to every man, and the riſing of the ſun to-morrow is ſo certain, that no rational being can doubt of it. Though, therefore, the mathematical method of proof is to be found in the mathematical ſciences only, yet ſatisfactory proof may be found in any other ſcience: and is actually found, in every part of knowledge that deſerves the name of ſcience.

THE EVIDENCE OF EXTERNAL SENSE, no leſs than mathematical evidence, produces abſolute certainty; though in another way. Our conception of external things is attended with an irreſiſtible belief, that they exiſt, and are what they appear to be. When I ſee a man or a horſe, I can no more doubt of his exiſtence, than of my own; and my own I believe with as full aſſurance as that two and two are four. The exiſtence of body

body is a ſelf-evident fact. It needs no proof; for to diſbelieve or doubt of it is impoſſible: and it admits of none; becauſe we know of nothing more evident to prove it by.

The EVIDENCE OF INTERNAL SENSE, or CONSCIOUSNESS, does alſo produce abſolute certainty. That we have within us a thinking and active principle, called a *ſoul* or *mind*; which is the ſame thing to-day as it was yeſterday; is conſcious of its own thoughts; and exerciſes a variety of faculties different in their objects and manner of operation; are all of them ſuggeſtions of internal ſenſe or conſciouſneſs, which we believe becauſe we feel them to be true; and which if we were not to believe, would bring on us the charge of irrationality.

THE EVIDENCE OF MEMORY does alſo produce abſolute certainty. A child believes,

lieves, without any doubt, that, what he remembers diſtinctly to have ſeen or heard, he really did ſee or hear. And he believes this, not becauſe he has been told that he may ſafely truſt his memory; but becauſe the law of his nature determines him, of his own accord, to believe his memory as well as his ſenſes. Indeed if we were to diſtruſt our memory, or treat it as a fallacious faculty, our ſenſes would be of little uſe to us, and we ſhould be incapable both of knowledge and experience, and alſo of reaſoning; for we cannot be ſatisfied with a proof, unleſs we remember the ſteps of it, and believe that on that remembrance we may depend. Thoughts remembered may decay through length of time, and at laſt vaniſh; but, of an event or object, that part which we diſtinctly remember, we believe to have been real. We may forget

forget the whole ſubject of a book, and yet remember, and conſequently believe, that we read it. We may forget the proofs of a propoſition, and yet remember that it was formerly proved to our ſatisfaction, and acquieſce in it accordingly. If in conceiving any event or object, we are uncertain whether we remember or only imagine, belief is ſuſpended and we remain in doubt; but no ſooner are we conſcious that we remember, than belief inſtantly takes place; and we ſay, I am certain it was ſo, for now I remember it diſtinctly.

As to THE EVIDENCE THAT WE HAVE WHEN FROM EFFECTS WE INFER CAUSES, we may obſerve, that the law of our nature determines us to believe, that *whatever begins to exiſt, proceeds from ſome cauſe.* If, on going home, I ſhould find, on the table, a book, which I never

ſaw

ſaw before, it would occur to me as abſolutely certain, that ſome cauſe had brought and ſome perſon made it. For if I were to be told, that nobody brought it, and that it never was made, I ſhould, without heſitation, declare ſuch a thing to be not only abſurd but impoſſible; and there is not one rational being who in this would refuſe to concur with me. Even children think in this manner, and ſome are very inquiſitive into the cauſes of things: a proof that it is not experience merely which leads us to infer the cauſe from the effect. If the book, which I ſuppoſed myſelf to find, contained wiſe obſervations, and was well printed and bound, I muſt of neceſſity believe, that the author, printer, and binder, were poſſeſſed of wiſdom and ſkill equal to the effect produced.——That being whom we believe to have proceeded from no cauſe

but the neceſſity of his own nature, and to be ſelf-exiſtent, and on all other beings independent, we muſt alſo believe to have exiſted from eternity, or in other words, to have had no beginning. For if every thing that had a beginning, proceeded from ſome cauſe, that which proceeded from no cauſe, could have had no beginning.

PROBABLE EVIDENCE is of two ſorts. One is, when from facts whereof we have had experience, we infer facts of the *ſame* kind not experienced. It is natural for us to think, that the courſe of things whereof we have had experience, and now have, will continue, unleſs we have poſitive reaſon to believe that it will be altered. This is the ground of many of thoſe opinions which we account quite certain. That to-morrow the ſun will riſe, and the ſea ebb and flow; that night

night will follow day, and ſpring ſucceed the winter; and that all men will die; are opinions amounting to certainty: and yet we cannot account for them otherwiſe than by ſaying, that ſuch has been the courſe of nature hitherto, and we have no reaſon to believe that it will be altered. When judgments of this kind admit no doubt, as in the example given above, our conviction is called MORAL CERTAINTY. I am morally certain, that the ſun will riſe to-morrow, and ſet to-day, and that all men will die, &c. The inſtances of paſt experience, on which theſe judgments are founded, are innumerable; and there is no mixture of contradictory inſtances which might lead us to expect a contrary event. But if the experiences, on which we ground our opinions of this ſort, are but few in number, or mixed with contradictory experiences,

ences, in this caſe we do not conſider the future event as morally certain, but only more or leſs probable according to the greater or leſs ſurplus of favourable inſtances.—The other ſort of probable evidence, which is termed ANALOGICAL, is, when from facts whereof we have had experience, we infer facts of a *ſimilar* kind not experienced; or, in other words, when we expect ſimilar events in ſimilar circumſtances. For example, we think it probable that the planets are inhabited, they being in all reſpects ſo like our earth. The force of an argument from analogy is in proportion to the degree of likeneſs, that there is between the caſe *from which* we argue, and the caſe *to which* we argue. In the example given, the caſe from which we argue, is the circumſtance of this earth's being a planet, warmed and enlightened by the ſun, and inhabited

by

many varieties of living creatures; d the caſe to which we argue, is that the other planets, which being in all her reſpects ſo ſimilar to our earth, we ink it highly probable that they muſt ſemble it in this, in being the habita- n of percipient beings. A man who inks, as Epicurus did, that they are bigger than they appear to his eye, n have no notion of their being inhabit- , becauſe to him they muſt appear in ery reſpect ſo unlike our earth. And we were to argue with him, in order bring him over to our opinion, we ould begin by explaining to him thoſe rticulars, wherein the earth and the her planets reſemble each other. As on as he underſtands theſe particulars well as we, he will, of his own ac- rd, admit the probability of our inion.

Another

Another and the laſt ſpecies of evidence, upon which we are to remark in this place, is TESTIMONY. It is natural for a man to ſpeak as he thinks; and it is eaſy, like walking forward. One may walk backward, or ſideways; but it is uneaſy, and a ſort of force upon nature: and the ſame thing is true of ſpeaking one thing and thinking another.—It is alſo natural for us to believe what others ſeriouſly tell us. We truſt the word of a man of whoſe veracity we have had experience; but we alſo credit teſtimony previouſly to ſuch experience; for children, who have the leaſt experience, are the moſt credulous. It is from having had experience of the diſhoneſty of men, and of the motives that tempt them to it, that we come to diſbelieve or to diſtruſt what they ſay. In general, when we doubt a man's word, we have ſome reaſon for

for it. We think that what he ſays is incredible in itſelf; or, that there is ſome motive or temptation which inclines him in the preſent caſe to violate truth; or, that he is not a competent judge of the matter in which he gives teſtimony; or, laſtly, we diſtruſt him now, becauſe we know him to have been a deceiver formerly.

Faith in teſtimony often riſes to abſolute certainty. Of places and perſons we never ſaw, and know nothing but from the teſtimony of others, we believe many things as firmly as we believe our own exiſtence. This happens, when the teſtimonies of men concerning ſuch places and perſons, are ſo many, and ſo conſiſtent, that it ſeems impoſſible they ſhould be fictitious.—When a number of perſons, not acting in concert, having no intereſt to diſguiſe what is true, or to affirm

affirm what is falſe, and competent judges of what they teſtify, concur in making the ſame report, it would be accounted folly to diſbelieve them, eſpecially if what they teſtify be credible in itſelf. Even when three, or when two witneſſes, ſeparately examined, having had no opportunity to concert a plan beforehand, concur in the ſame declaration, we believe them, though we have had no experience of their veracity; becauſe we know, that in ſuch a caſe their declarations would not be conſiſtent, if they were not true.—In regard to an impoſſible thing, we ſhould not believe our own ſenſes, nor conſequently human teſtimony. Miraculous facts, however, are not to be ranked with impoſſibilities. To raiſe a dead man to life, to cure blindneſs with a touch, to remove lameneſs, or a diſeaſe, by ſpeaking a word, are miracles:

miracles: but to divine power as eaſy, as to give life to an embryo, make the eye an organ of ſight, or cauſe vegetation to revive in the ſpring. If it be aſked, what evidence is ſufficient to eſtabliſh the truth of miraculous events ſuch as theſe, we anſwer, that every event admits of a proof from human teſtimony, which it is poſſible for a ſufficient number of competent witneſſes to ſee and to hear.

CHAP. II.

Of Propoſitions, and their Various Kinds.

A PROPOSITION is a judgment of the mind expreſſed in words. Now as our judgments include at leaſt two ideas, one of which is affirmed or denied of the other; ſo muſt a propoſition have terms

anſwering to theſe ideas. The idea, of which we affirm or deny, and of courſe the term expreſſing that idea, is called THE SUBJECT of that propoſition. The idea affirmed or denied, as alſo the term anſwering to it, is called THE PREDICATE. Thus, in the propoſition, *God is omnipotent*,—*God* is the ſubject, it being of him that we affirm omnipotence; and *omnipotent* is the predicate, becauſe we affirm the idea, expreſſed by that word, to belong to God. And that word, in a propoſition, which connects the ſubject and predicate together, is called THE COPULA; as in the above mentioned propoſition, where *is* is the copula, and ſignifies the agreement of the ideas of God and omnipotence. But if we mean to ſeparate two ideas, then, beſides the copula we muſt alſo uſe ſome particle of negation to expreſs this repugnance. Of this

this kind, the propoſition, *man is not perfect*, may ſerve as an example; where the idea of *perfection* being intended to be ſeparated from the idea of *man*, the negative particle *not* is inſerted after the copula, to ſignify the diſagreement between the ſubject and the predicate. But although every propoſition neceſſarily conſiſts of theſe three parts, it is not alike neceſſary that they be all ſeverally expreſſed in words; becauſe the copula is often included in the term of the predicate, as when we ſay *he writes*, which imports the ſame as *he is writing*. And, in the Latin language, a ſingle word has often the force of a whole ſentence; where *ambulat*, for example, is the ſame as *ille eſt ambulans; amo*, as *ego ſum amans*.

Propoſitions are either AFFIRMATIVE or NEGATIVE, UNIVERSAL or PARTICULAR, ABSOLUTE or CONDITIONAL, SIMPLE

SIMPLE OR COMPOUND, SELF-EVIDENT OR DEMONSTRABLE, SPECULATIVE OR PRACTICAL.

An affirmative propoſition connects the predicate with the ſubject; as, *a ſtone is heavy:* a negative ſeparates them; as *God is not the author of evil.* And as, in all caſes, the predicate muſt either be connected with the ſubject, or ſeparated from it, it is evident that all propoſitions fall under theſe two diviſions.

An univerſal propoſition is a propoſition which has for its ſubject ſome general term taken in its full extent; ſo that the predicate agrees with all the individuals comprehended under it, if it be a proper ſpecies,—and with all the ſeveral ſpecies and their individuals, if it be what is termed a genus. Thus, *all animals have a power of beginning motion,* is an univerſal propoſition; *animals,* the ſubject,

ject, being a general term without any mark of limitation, and by conſequence taken in its full extent: hence the power of beginning motion may be affirmed of all the ſeveral ſpecies of animals, as of quadrupeds, birds, inſects, fiſhes, &c.; and of all the individuals of which theſe different ſpecies conſiſt, as of this hawk, that horſe, and ſo on with reſpect to the reſt. A particular propoſition is one, which has, in like manner, ſome general term for its ſubject; but with a mark of limitation added, to denote that the predicate agrees with ſome only of the individuals comprehended under it, if it be a ſpecies,—or with one or more, not with all, of the ſpecies belonging to it, if it be a genus. Thus, *ſome ſtones are heavier than iron; ſome men have an uncommon ſhare of prudence.*——Where the ſubject of a propoſition is an individual,

it

it is called a SINGULAR PROPOSITION. Of this nature are the following, *Sir Iſaac Newton was the inventor of fluctions; This book contains many uſeful truths.* And ſuch propoſitions, though more particular than thoſe which are generally called ſo, come under the ſame rule with univerſals; becauſe, in them, the ſubject is taken in its full extent.

It has been already obſerved, that all propoſitions are either affirmative or negative: it is equally evident, that, in both caſes, they may be univerſal or particular. Hence ariſes that celebrated fourfold diviſion of them, into UNIVERSAL AFFIRMATIVE, UNIVERSAL NEGATIVE; PARTICULAR AFFIRMATIVE, and PARTICULAR NEGATIVE. And, in forming ſyllogiſms, it has become a cuſtom, in the ſchools, to make uſe of the four vowels, *a*, *e*, *i*, *o*, to denote theſe varieties:

rieties: *a*, to denote an univerſal affirmative, as *all good men are esteemed; e*, an univerſal negative, as, *no man is infallible; i*, a particular affirmative, as, *ſome men are wiſe*, *o*, a particular negative, as, *ſome men are not honest.*

" *Aſſerit* a, *negat* e, *verum generaliter ambæ:*"

" *Aſſerit* i, *negat* o, *ſed particulariter ambo.*"

The diſtinction of propoſitions into univerſal and particular, is called their QUANTITY; and into affirmative and negative, their QUALITY.

Abſolute propoſitions are thoſe in which we affirm, that ſome property is inſeparable from the idea of the ſubject; as, *lead is heavy.* Conditional propoſitions are thoſe in which the predicate is not neceſſarily connected with the ſubject,

ject, and can be affirmed of it on ſome condition only, diſtinct from the idea of the ſubject; as, *if a ſtone be expoſed to the rays of the ſun, it will contract a degree of heat.* And here we are to obſerve, that all conditional propoſitions conſiſt of two diſtinct parts: one, expreſſing the condition upon which the predicate agrees or diſagrees with the ſubject; as, in the example before us, *if a ſtone be expoſed to the rays of the ſun:* the other, joining or disjoining ſaid predicate and ſubject; as, in the ſame example, *it will contract a degree of heat.* The firſt of theſe parts is called the antecedent; the ſecond, the conſequent.

When a propoſition has but one ſubject and one predicate, it admits of no ſubdiviſion, and is ſaid to be ſimple. When it has more than one ſubject, or more than one predicate; or has ſeveral ſubjects

ſubjects and predicates; it is ſaid to be compound. If it have one ſubject and more than one predicate,—or, *vice verſa*, one predicate and more than one ſubject, —it may, in the one caſe, be reſolved into as many ſimple propoſitions as there are predicates,—and, in the other, into as many as there are ſubjects; as will be obvious from the following examples: *The practice of ſwearing in common converſation, is abſurd, unmannerly, and impious; neither kings nor people are exempt from death.* Nor is it leſs evident, that if a propoſition conſiſts of ſeveral ſubjects and predicates, it may be reſolved into as many ſimple propoſitions, as there are ſubjects and predicates. Compound propoſitions are of two kinds; *copulative*, and *disjunctive*. A copulative propoſition takes place, where the ſubjects and predicates are ſo joined together, that

they may be all ſeverally affirmed or denied of each other. Of this nature are the examples which have been juſt given. A disjunctive propoſition compares ſeveral predicates with the ſame ſubject, and affirms that one of them neceſſarily belongs to it, but without determining which; as, *this world either exists of itſelf, or is the work of ſome allwiſe and powerful cauſe.* It is the nature of all propoſitions of this claſs, that, upon determining the particular predicate, the reſt are of courſe to be removed; or, if all the predicates but one be removed, that one neceſſarily takes place: thus, in the example given above, if we allow the world to be the work of ſome wiſe and powerful cauſe, we of courſe deny it to be ſelf-exiſtent; or, if we deny it to be ſelf-exiſtent, we muſt neceſſarily admit, that it was produced by ſome wiſe and powerful cauſe.

A pro-

A propoſition is ſelf-evident, when, without any inveſtigation or proof, the truth of it is obvious at firſt view. When we affirm, for inſtance, that *a part of any thing is leſs than the whole*, or *that men exiſt, and other animals*; whoever underſtands the terms made uſe of, perceives, at the firſt view, the truth of what is aſſerted; nor can he, by any efforts, bring himſelf to believe the contrary. A demonſtrable propoſition is one, the truth of which is not immediately perceived by the mind, but may be made to appear by means of other propoſitions more known and obvious, whence it follows as an unavoidable conſequence.

A ſpeculative propoſition affirms or denies ſome property of its ſubject, as when it is affirmed, that *the radii of a circle are all equal*. A practical propoſition aſſerts that ſomething may be done

or

or effected; as, that *a right line may be drawn from one point to another.* And from this laſt diſtinction ariſes a four-fold diviſion of mathematical propoſitions, into SELF-EVIDENT SPECULATIVE, and SELF-EVIDENT PRACTICAL; DEMONSTRABLE SPECULATIVE, and DEMONSTRABLE PRACTICAL. Self-evident ſpeculative propoſitions are called AXIOMS; and ſelf-evident practical propoſitions, POSTULATES: demonſtrable ſpeculative propoſitions, THEOREMS; and demonſtrable practical propoſitions, PROBLEMS.

PART

PART III.

Of Reaſoning.

THE ſubject of this part of Logick is an extenſive one; and to diſcuſs it fully would require much time. We ſhall content ourſelves with explaining what is meant by reaſoning, and giving ſome account of various kinds of ſyllogiſms, which are acts of reaſoning expreſſed in words. To which we ſhall ſubjoin ſuch of the ſophiſms, or falſe arguments, as are the moſt remarkable.

CHAP.

CHAP. I.

Of Reaſoning, and the Parts of which it conſists.

It has been already obſerved, that, in comparing two ideas together, it will ſometimes happen, that their agreement or diſagreement cannot be *immediately*† diſcerned. In ſuch caſes it becomes neceſſary to look out for ſome third idea, that will admit of being compared with them, ſeverally; that is, firſt with one and then with the other: that, by ſuch compariſon, we may be enabled to ſee, how far the ideas, with which this third is compared, do, themſelves, agree or diſagree. For it is a ſelf-evident truth, that,

† That is, without ſome *medium*, or proof.

, *if two things agree with a third, must agree with each other;* and that, *ıe of two things agree with a third, the other diſagree with it, they must ree with each other.*

rom what has been ſaid, it appears, every act of reaſoning neceſſarily in- es three diſtinct judgments: two, hich the ideas, the relations of which want to diſcover, are ſeverally com- d with the middle idea; and a third, hich they are themſelves connected isjoined, according to the reſult of compariſon. Now, as our judg- ts, when put into words, are called oſitions; ſo our acts of reaſoning, n expreſſed by words, are termed LOGISMS. And hence it follows, that very act of reaſoning implies three ral judgments, ſo every ſyllogiſm muſt ıde three diſtinct propoſitions. And when

when an act of reaſoning is thus put i
words, and appears in the form of a
logiſm, the intermediate idea made
of to diſcover the agreement or diſagr
ment which we ſeek to inveſtigate,
called the MIDDLE TERM; and the t
ideas themſelves, with which this th
is compared, go by the name of 1
TREMES.

But, as theſe things are beſt illuſtra
by examples, let us ſuppoſe, that
have ſet ourſelves to enquire, *whet
men are accountable for their actions.*
the relation between the ideas of *n*
and *accountableneſs*, comes not within
immediate view of the mind, our firſt c
muſt be, to find out ſome third idea t
will enable us to diſcover and trace
A very ſmall meaſure of reflection is ſ
ficient to inform us, that no creature c
be accountable for his actions, unleſs

ſupp

ſuppoſe him capable of diſtinguiſhing thoſe which are good from thoſe which are bad; that is, unleſs we ſuppoſe him poſſeſſed of reaſon. Nor is this alone ſufficient. For what would it avail him to diſtinguiſh good from bad actions, if he had no freedom of choice, and could not avoid the one and purſue the other? Hence it becomes neceſſary to take in both theſe conſiderations in the preſent caſe: It is at the ſame time equally evident, that wherever there is this ability of diſtinguiſhing good from bad actions, and purſuing the one and avoiding the other, there alſo a creature is accountable. We have then got a third idea, with which *accountableneſs* is inſeparably connected, namely the idea of *a creature poſſeſſed of reaſon and liberty*. Let us now take this third or middle idea, and compare it with the other idea in queſtion,

namely *man;* and we all know by experience, that it may be affirmed of him. Having thus, by means of the intermediate idea, formed two ſeveral judgments, —that *man is poſſeſſed of reaſon and liberty*, and that *reaſon and liberty imply accountableneſs;* a third obviouſly and neceſſarily follows, namely that *man is accountable for his actions.*

Here then we have a complete act of reaſoning, in which, according to what has been already obſerved, there are three diſtinct judgments; two, that may be ſtyled previous, in as much as they lead to the other, and ariſe from comparing the middle idea with the two ideas in queſtion; and a third, which is a conſequence of theſe previous acts, and flows from uniting the extreme ideas themſelves. If now we put this reaſoning into

into due form, it exhibits what Logicians call a ſyllogiſm, and runs thus.

Every creature, poſſeſſed of reaſon and liberty, is accountable for his actions:

Man is a creature poſſeſſed of reaſon and liberty:

Therefore man is accountable for his actions.

Of theſe three propoſitions, the two firſt anſwer the two previous judgments, in reaſoning; and are called THE PREMISES, becauſe they are *placed before* the other: the third is termed THE CONCLUSION; as being gained in conſequence of what was aſſerted in the premiſes. *Man and accountableneſs* are the extremes; and *a creature poſſeſſed of reaſon and liberty*, the middle term.

We may alſo obſerve, that, as the concluſion is made up of the extreme terms of the ſyllogiſm, ſo that extreme, which

which ſerves as the predicate of the concluſion, goes by the name of THE MAJOR TERM; and the other extreme, which makes the ſubject in the ſame propoſition, is called THE MINOR TERM. And again, from this diſtinction between the extremes ariſes alſo a diſtinction between the premiſes; where theſe extremes are ſeverally compared with the middle term: that propoſition which compares the major term, or the predicate of the concluſion, with the middle term, being called THE MAJOR PROPOSITION; the other, wherein the ſame middle term is compared with the ſubject of the concluſion or minor term, being called THE MINOR PROPOSITION. To which may be added, that, when a ſyllogiſm is propoſed in due form, the major propoſition is always placed firſt, the minor next, and the concluſion laſt.

Theſe

Theſe things premiſed, we may define reaſoning to be, *an act or operation of the mind, deducing ſome propoſition, the truth of which was before unknown, from other previous ones that are either ſelf-evident or ſuch as have been fully proved and eſtabliſhed.* Theſe previous propoſitions, in a ſimple act of reaſoning, are only two in number; and, in order to afford an unqueſtionable concluſion, muſt be intuitive propoſitions. When they are not ſo, previous ſyllogiſms are required: in which caſe reaſoning becomes a complicated act, taking in a variety of ſucceſſive ſteps. If, for example, in the major of the ſyllogiſm given above, viz. *Every creature poſſeſſed of reaſon and liberty is accountable for his actions*, the connexion between the ſubject and predicate could not be perceived by the mere attention of the mind to the ideas themſelves, it is evident that this

propoſition

propoſition would no leſs require proof than the concluſion deduced from it. In this caſe, a new middle term muſt be ſought for, to trace the connexion here ſuppoſed; and this, of courſe, furniſhes another ſyllogiſm; by which having eſtabliſhed the propoſition in queſtion, we are then, and not before, at liberty to uſe it in any ſucceeding act of reaſoning. And ſhould it ſo happen, that, in the ſecond ſyllogiſm, there were ſtill ſome previous propoſition, the truth of which did not appear at firſt ſight, we muſt then have recourſe to a third ſyllogiſm, in order to lay open that truth to the mind; becauſe, ſo long as the premiſes remain uncertain, the concluſion, built upon them, muſt be ſo too. And when, by conducting our thoughts in this manner, we at laſt arrive at ſome ſyllogiſm where the previous propoſitions are intuitive

tuitive truths, the mind then reſts in full ſecurity; as perceiving, that the ſeveral concluſions, which it has paſſed through, ſtand upon the immoveable foundation of ſelf-evidence, and, when traced to their ſource, terminate in it.

And here, if, after having thus unravelled a demonſtration, we take it the contrary way, and obſerve how the mind, ſetting out with intuitive propoſitions, connects them together to form a concluſion; how, by introducing this concluſion into another ſyllogiſm, it ſtill advances one ſtep farther; and ſo proceeds, making every new diſcovery ſubſervient to future progreſs; we ſhall then perceive clearly, that reaſoning, in the higheſt exerciſe of that faculty, is no more than an orderly combination of thoſe ſimple acts which we have already ſo fully explained. And we ſhall alſo perceive, that

that all the knowledge acquired by reaſoning, how far ſoever we may carry our diſcoveries, is ſtill built upon our intuitive judgments; every diſcovery of human reaſoning being the conſequence of a ſyllogiſm, the premiſes of which are ſelf-evident propoſitions,—or of a train of ſyllogiſms, which, when traced to their ſource, always terminate in them.

CHAP. II.

Of Syllogiſms.

SYLLOGISMS may be divided into SINGLE and COMPOUND. Single ſyllogiſms are thoſe which conſiſt of three propoſitions, and no more. Compound ſyllogiſms are thoſe which conſiſt of more than

than three propoſitions, and may be formed into two or more ſyllogiſms.

Of ſingle Syllogiſms.

Single ſyllogiſms may be divided into ſeveral ſorts; of which the moſt important are SIMPLE or CATEGORICAL, CONDITIONAL, and DISJUNCTIVE.

Thoſe are properly called Simple, or Categorical, ſyllogiſms, which are made up of three plain, ſimple, or categorical propoſitions; in which the middle term is joined with one part of the queſtion in the major propoſition, and with the other in the minor.

And here, to guard us againſt falſe inferences, certain *rules* have been found neceſſary, which depend on the four following *axioms*.

1. Particular propoſitions are contained in univerſals, and may be inferred

from them; but univerſals are not contained in particulars, and cannot be inferred from them.

2. In all univerſal propoſitions, the ſubject is univerſal: in all particular propoſitions, the ſubject is particular.

3. In all affirmative propoſitions, the predicate has no greater extenſion than the ſubject; for its extenſion is reſtrained by the ſubject: and therefore it is always to be eſteemed as a particular idea. It is by mere accident, if ever it be taken univerſally; and cannot happen, but in ſuch univerſal or ſingular propoſitions as are reciprocal.†

4. The predicate of a negative propoſition is always taken univerſally; for, in its whole extenſion, it is denied of the

† A propoſition is ſaid to be *reciprocal*, when the ſubject and the predicate may mutually interchange their places with preſervation of the truth.

the ſubject. If we ſay, *no ſtone is vegetable*, we deny all ſorts of vegetation concerning ſtones.

The *rules* are theſe.

1. *The middle term muſt not be taken twice particularly, but once at leaſt univerſally.* For if the middle term be taken for two different parts or kinds of the ſame univerſal idea, then the ſubject of the concluſion, or minor extreme, is compared with one of theſe parts, and the predicate, or major extreme, with the other part, and this will never ſhow whether that ſubject and predicate agree or diſagree; for there will then be four diſtinct terms in the ſyllogiſm, and the two parts of the queſtion, that is the two extremes, will not be compared with the ſame third idea.

2. *The terms, in the concluſion, muſt never be taken more univerſally than they*

are

are in the premiſes. The reaſon is derived from the firſt axiom, that *generals can never be inferred from particulars.*

3. *A negative concluſion cannot be proved by two affirmative premiſes.* For, when the two terms of the concluſion are united or agree with the middle term, it does not by any means follow that they diſagree with one another.

4. *If one of the premiſes be negative, the concluſion must be negative.* For if the middle term be denied of either part of the concluſion, it may ſhow that the terms of the concluſion diſagree, but it can never ſhow that they agree.

5. *If either of the premiſes be particular, the concluſion must be particular.* This may be proved from the firſt axiom. Theſe two laſt rules are ſometimes united in this ſingle ſentence, *the concluſion always follows the weaker part of the premiſes.*

For

For negatives and particulars are accounted inferior to affirmatives and univerſals.

6. *From two negative premiſes, nothing can be concluded.* For they ſeparate the middle term both from the ſubject and the predicate of the concluſion; and when two ideas diſagree with a third, we cannot infer that they either agree or diſagree with each other.

7. *From two particular premiſes, nothing can be concluded.* This rule depends chiefly on the firſt axiom.

In forming ſyllogiſms, eſpecially thoſe of which we are now treating, we make uſe of FIGURE and MOODS. By the Figure of a ſyllogiſm, is meant the peculiar way in which the middle term is connected with the extremes. By the Moods belonging to a figure, are meant, the ſeveral ways in which the propoſitions of one ſyllogiſm may differ from thoſe of another,

belonging

belonging to the ſame figure, as to quantity and quality; that is, as to their being univerſal or particular, affirmative or negative.

Figures are uſually reckoned *three*. In the *firſt*, the middle term is the ſubject of the major, and the predicate of the minor, propoſition. In the *ſecond*, it is the predicate of both theſe propoſitions; and, in the *third*, the ſubject. And that this account of the figures might be the better remembered, it has been expreſſed as follows: *Sub præ*, primæ; bis *præ*, ſecundæ; tertiæ, bis *ſub*.

The moods, belonging to each of theſe figures, are ſignified by certain artificial words, in which the conſonants are neglected, and the vowels only regarded; *a*, denoting, as was before obſerved, an univerſal affirmative; *e*, an univerſal negative; *i*, a particular affirmative; and

o, a

o, a particular negative. And, to aſſiſt the memory in retaining theſe words, they are compriſed in four latin verſes.

Barbara, Celarent, Darii, Ferio quoque, primæ.
Ceſare, Camestres, Feſtino, Baroco, ſecundæ.
Tertia *Darapti* ſibi vindicat atque *Felapton,*
Adjungens *Diſamis, Datiſi, Bocardo, Feriſon.*

BAR- *All wicked men* are miſerable:
BA- Tyrants are *wicked men:*
RA. Therefore tyrants are miſerable.

CE- They who are *always in fear* cannot be happy:
LA- Covetous men are *always in fear:*
RENT. Therefore covetous men cannot be happy.

DA- *Whatſoever furthers our ſalvation* is good for us:

RI- Some afflictions *further our ſalvation:*

I. Therefore ſome afflictions are good for us.

FE- *Nothing that muſt be repented of,* is deſirable:

RI- Sinful pleaſures *muſt be repented of:*

O. Therefore ſinful pleaſures are not deſirable.

It is the excellence of this figure, that all queſtions may be proved by it, whether univerſal or particular, affirmative or negative.

In the *ſecond* figure alſo, there are four moods; but it admits of negative concluſions only.

CE-

CE- No practice can be innocent, which *is inconsistent with the Christian law of Charity* :†

SA- The practice of reducing men, of any colour, to a ſtate of ſlavery, is *inconsistent with the Chriſtian law of Charity* :

RE. Therefore the practice of reducing men, of any colour, to a ſtate of ſlavery, cannot be innocent.

CA- Every man of ſtrict honour would *diſdain to enrich himſelf at his neighbour's expenſe* :

MES- No gameſter *diſdains to enrich himſelf at his neighbour's expenſe* :

TRES. Therefore, no gameſter is a man of ſtrict honour.

N FES-

† "Whatſoever ye would that men ſhould do to you, do ye even ſo to them." Matt. vii 12.

FES- No ſins are *excuſable:*
TI- Anger, upon ſome occaſions, is *excuſable:*
NO. Therefore anger, upon ſome occaſions, is not a ſin.

BA- Every true patriot will *ſeek to promote peace and concord among his fellow citizens:*
RO. Some who profeſs to be patriots do not *ſeek to promote concord and peace among their fellow citizens:*
CO. Therefore ſome who profeſs to be patriots, are not true patriots.

In the *third* figure there are ſix moods; and the concluſion is always particular.

DA- *All good christians* ſhall be ſaved:
RAP- *All good christians* have ſinned:
TI. Therefore ſome that have ſinned ſhall be ſaved.

FE-

FE- No *hypocrites* are pleaſing to God.

LAP- All *hypocrites* ſeem to be religious:

TON. Therefore ſome who ſeem to be religious are not pleaſing to God.

DI- Some *ſelfiſh and turbulent men*, make very violent pretenſions to patriotiſm:

SA- All *ſelfiſh and turbulent men* are deſtitute of any real love for their country:

MIS. Therefore ſome who are deſtitute of any real love for their country, make very violent pretenſions to patriotiſm.

DA-

DA- All *honest men* are entitled to our love and eſteem:
TI- Some *honest men* differ very widely from us in their ſentiments on religion and politicks:
SI. Therefore ſome, who differ very widely from us in their ſentiments on religion and politicks, are entitled to our love and eſteem.

BO- Some *wars* are not to be avoided:
CAR- All *wars* produce blood-ſhed:
DO. Therefore ſome blood-ſhed is not to be avoided.

FE- No *afflictions* are pleaſant:
RI- Some *afflictions* are good for us:
SON. Therefore ſome things that are good for us are not pleaſant.

The

The *ſpecial rules* of the three figures are theſe. In the firſt, *the major propoſition must always be univerſal, and the minor affirmative.* In the ſecond, *the major must alſo be univerſal, and one of the premiſes, together with the concluſion, must be negative.* In the third, *the minor must be affirmative, and the concluſion always particular.*

There is alſo a fourth; in which the middle term is the predicate of the major propoſition, and the ſubject of the minor. But this, being a very indirect and oblique manner of concluding, is never uſed in the ſciences, or in common life; and is, conſequently, uſeleſs.

A Conditional or Hypothetical ſyllogiſm is a ſyllogiſm of which the major is a conditional or hypothetical propoſition; as

If

If there be a God he ought to be worſhipped:

But there is a God:

Therefore he ought to be worſhipped.

And here it is to be obſerved, that, in all propoſitions of this kind, the antecedent muſt always contain ſome certain and genuine condition, which neceſſarily implies the conſequent; for otherwiſe the propoſition itſelf will be falſe, and therefore ought not to be admitted into our reaſonings. Hence it follows, that, when any conditional propoſition is aſſumed, if we admit the antecedent of that propoſition, we muſt at the ſame time neceſſarily admit the conſequent; but if we reject the conſequent, we muſt in like manner neceſſarily reject the antecedent. It appears then, that, in conditional ſyllogiſms, there are two ways of arguing which lead to a certain and unavoidable

concluſion,

concluſion. 1. *From the admiſſion of the antecedent, to the admiſſion of the conſequent:* which conſtitutes the mood or ſpecies of hypothetical ſyllogiſms, diſtinguiſhed in the ſchools by the name of the MODUS PONENS; in as much as by it the whole conditional propoſition is *eſtabliſhed.* And, of this mood, the ſyllogiſm given above is an example. 2. *From the removal of the conſequent to the removal of the antecedent:* which conſtitutes the mood or ſpecies called by Logicians the MODUS TOLLENS, becauſe by it both antecedent and conſequent are *rejected;* as appears by the following example.

If the ſun be riſen, the night is paſt:
But the night is not paſt:
Therefore the ſun is not riſen.

Theſe two ſpecies take in the whole claſs of conditional ſyllogiſms, and include all the poſſible ways of arguing that lead by

by them to a legitimate concluſion; becauſe we cannot here proceed by a contrary proceſs of reaſoning, that is, from the removal of the antecedent to the removal of the conſequent, or from the eſtabliſhing of the conſequent to the eſtabliſhing of the antecedent. For although the antecedent always expreſſes ſome real condition, which, once admitted, neceſſarily implies the conſequent, yet it does not follow that there is therefore no other condition; and if ſo, then, after removing the antecedent, the conſequent may ſtill hold, becauſe of ſome other condition which implies it. When we ſay, *If a ſtone be expoſed for ſome time to the rays of the ſun, it will contract a degree of heat*; the propoſition is certainly true, and, admitting the antecedent, we muſt admit the conſequent. But as there are other ways by which a ſtone may contract a degree.

gree of heat, it will not follow, from the abſence of the before mentioned condition, that therefore the conſequent cannot take place. In other words, we cannot argue, *But this ſtone has not been expoſed to the rays of the ſun; therefore it has not contracted a degree of heat;* in as much as there are other ways, by which heat might have been contracted by it.—And as we cannot argue from the removal of the antecedent to the removal of the conſequent, no more can we argue from the admiſſion of the conſequent to the admiſſion of the antecedent. Becauſe as the conſequent may flow from a variety of cauſes, the allowing of it does not determine the preciſe cauſe, but only that there muſt have been ſome one of them. Thus, in the foregoing propoſition, *If a ſtone be expoſed for ſome time to the rays of the ſun, it will contract a degree of heat,*—

admitting the conſequent, namely that *it has contracted a degree of heat*, we are not therefore bound to admit the antecedent, that *it has for ſome time been expoſed to the rays of the ſun*; in as much as there are other cauſes whence that heat may have proceeded.—Theſe two ways therefore of arguing, hold not in conditional ſyllogiſms: except indeed, where the antecedent expreſſes the only condition; which is a caſe that happens but ſeldom, and cannot be extended to a general rule.

A Disjunctive ſyllogiſm is a ſyllogiſm of which the major is a disjunctive propoſition; as in the following example.

The world is either ſelf-exiſtent, or the work of ſome finite, or of ſome infinite being:

But it is not ſelf-exiſtent, or the work of a finite being:

Therefore it is the work of an infinite being.

Now

Now a disjunctive Propoſition is that, in which, of ſeveral predicates, we affirm one neceſſarily to belong to the ſubject, to the excluſion of all the reſt; but leave that particular one undetermined. Hence it follows, that as ſoon as we determine the particular predicate, all the reſt are of courſe to be rejected; or if we reject all the predicates but one, that one neceſſarily takes place. When therefore, in a disjunctive Syllogiſm, the ſeveral predicates are enumerated in the major, if the minor eſtabliſhes any one of theſe predicates, the concluſion ought to remove all the reſt; or if, in the minor, all the predicates but one are removed, the concluſion muſt neceſſarily eſtabliſh that one. Thus, in the disjunctive ſyllogiſm given above, the major affirms one of three predicates to belong to the earth; namely, that it is *ſelf-exiſtent*, or that it is

the

the *work of a finite*, or that it is *the work of an infinite being*: two of theſe predicates are removed in the minor; namely *ſelf-exiſtence*, and *the work of a finite being*: hence the concluſion neceſſarily aſcribes to it the third predicate, and affirms that it is *the work of an infinite being*. If now we give the ſyllogiſm another turn, ſo that the minor may *eſtabliſh* one of the predicates, by affirming the Earth to be *the production of an infinite being*; then the concluſion muſt remove the other two; by affirming it to be neither *ſelf-exiſtent*, nor *the work of a finite being*. Theſe are the forms of reaſoning in this ſpecies of ſyllogiſms; the juſtneſs of which appears at firſt ſight: and that there can be no other, is evident from the very nature of a disjunctive propoſition.

Of Compound Syllogiſms.

A compound ſyllogiſm, conſiſts, as was before obſerved, of more than three propoſitions, and may be reſolved into two or more ſyllogiſms. The chief of theſe are the EPICHIREMA, DILEMMA, PROSYLLOGISM, SORITES, and INDUCTION of particulars.

Epichirema is a ſyllogiſm, in which we prove the major, or the minor, or both, before we draw the concluſion. As,

Sickneſs may be good for us; becauſe it brings us to conſider our ways:

But we are uneaſy under ſickneſs; as appears from our ſighs, groans, and complaints:

Therefore we are ſometimes uneaſy under what is good for us.

A Dilemma is an argument, by which we endeavour to prove the abſurdity or falſehood

falſehood of ſome aſſertion. In c
this, we aſſume a conditional prop
the antecedent of which is the a
to be diſproved, and the conſec
disjunctive propoſition, enumerat
the poſſible ſuppoſitions upon whi
aſſertion can take place. If then it
that all theſe ſuppoſitions ought t
jected, it is plain that the antece
aſſertion itſelf muſt be rejecte
When, therefore, ſuch a propoſ
made the major of any ſyllogiſm
minor rejects all the ſuppoſitions
ed in the conſequent, it follows
ſarily, that the concluſion muſt re
antecedent; which, as has been
the aſſertion to be diſproved. F
appears, that we may define a c
to be a conditional or hypothetic
giſm, where the conſequent of th
is a disjunctive propoſition, w

wholly taken away or removed in the minor. It follows, that a dilemma is an argument in the *modus tollens* of conditional ſyllogiſms. And it is plain, that, if the antecedent of the major be an affirmative propoſition, the concluſion will be negative; but if it be a negative propoſition, the concluſion will be affirmative.

The following is an example.

If God did not create the world perfect in its kind; it muſt have proceeded, either from want of inclination, or want of power:

But it could not have proceeded, either from want of inclination, or want of power:

Therefore it is abſurd to ſay, that God did not create the world perfect in its kind.

A dilemma may be faulty three ways. 1. When what is affirmed or denied, in the minor, concerning the ſeveral ſuppoſitions in the conſequent of the major, is falſe. 2. When all the poſſible ſuppoſitions

ſitions upon which the aſſertion, contained in the antecedent, can take place, are not fully enumerated in the conſequent. 3. When the argument may be retorted with equal force againſt him who uſes it.

A Proſyllogiſm is a form of reaſoning, in which two or more ſyllogiſms are ſo connected together, that the concluſion of the former is the major or minor of the following.

Blood cannot think:
But the ſoul of man thinks:
Therefore the ſoul of man is not blood.
The ſoul of a brute is blood:
Therefore the ſoul of man is different from the ſoul of a brute.

A Sorites is a way of arguing, in which ſeveral propoſitions are ſo linked together that the predicate of one becomes continually the ſubject of the next following; until at laſt a concluſion is formed, by bringing

bringing together the ſubject of the firſt propoſition, and the predicate of the laſt; as in the following example.

There can be no enjoyment of property, without government:

No government, without a magiſtrate:

No magiſtrate, without obedience:

And no obedience where every one acts as he pleaſes:

Therefore there can be no enjoyment of property, where every one acts as he pleaſes.

Reaſoning by Induction is, when we infer univerſally concerning any idea, what we have before affirmed or denied ſeparately, of all its ſeveral parts or ſubdiviſions. Thus if we ſuppoſe the whole race of animals ſubdivided into men, beaſts, birds, inſects, and fiſhes, and then reaſon concerning them in this manner,—*All men have the power of beginning motion;*

all beasts have this power; all birds; all inſects; all fiſhes: therefore all animals have the power of beginning motion;—the argument is an Induction. The truth of the concluſion, in this way of reaſoning, depends upon the parts and ſubdiviſions being fully enumerated.

Laſtly, in reaſoning, eſpecially where it makes a part of common converſation, we uſe a ſort of Elliptical ſyllogiſms called ENTHYMEMES, conſiſting of the concluſion and one of the premiſes; the other, which, in theſe caſes, is not only an evident truth, but alſo familiar to the minds of all men, being ſuppreſſed. As, for example,

Every man is mortal:
Therefore every king is mortal:

God is our creator:
Therefore he muſt be worſhipped.

Theſe

Theſe ſyllogiſms appear to be imperfect, as conſiſting each of but two propoſitions: yet are they, in reality, complete; except that, in the firſt, the minor, *every king is a man*,—and, in the ſecond, the major, *our creator is to be worſhipped*,—are omitted, and left to the reader to ſupply,—as a propoſition ſo evident, and at the ſame time ſo familiar, that it cannot eſcape him. But theſe belong to the head of ſingle ſyllogiſms.

To this chapter, which treats of various kinds of ſyllogiſms, it may not be improper to add ſome account of ſeveral ſorts of arguments, which are uſually diſtinguiſhed by Latin names. For as theſe names will occaſionally occur, in books and

and in converſation, it will be of uſe to underſtand what is meant by them.

Demonſtrations A PRIORI are thoſe which prove the effect from the cauſe: as, *The ſcripture is infallible; becauſe it is the word of God who cannot lie.* Demonſtrations A POSTERIORI, on the contrary, are thoſe which prove the cauſe from the effect: as, *All the works of God are uſeful and well contrived: therefore the Creator is wiſe and good.*

The ARGUMENTUM DUCENS IN ABSURDUM has been already explained. We ſhall only add that it is ſometimes called REDUCTIO AD ABSURDUM, and a proof PER IMPOSSIBILE.

When we infer, that a certain propoſition is true, becauſe another has been proved to be true which is leſs probable, this is called an argument EX MINUS PROBABILI AD MAGIS.

When

When we argue from the certainty of a thing in the ſame circumſtances, we are ſaid to argue EX PARI.

When we prove the truth of any propoſition, upon which, if proved, our opponent had agreed to admit the truth of the propoſition in queſtion, this is an argument EX CONCESSO.

When an argument is taken from the nature of things and addreſſed to the reaſon of mankind, it is called ARGUMENTUM AD JUDICIUM.

When it is borrowed from ſome convincing teſtimony, it is ARGUMENTUM AD FIDEM.

When it is drawn from any inſufficient medium whatſoever, in confidence that our oppoſer has not ſkill to refute or anſwer it, this is ARGUMENTUM AD IGNORANTIAM.

When

When we prove a thing to be true, or falſe, from the profeſſed opinion of the perſon with whom we diſpute, it is named ARGUMENTUM AD HOMINEM.

When the argument is brought from the ſentiments of ſome wiſe, grave, or good men, whoſe authority we reverence and hardly dare oppoſe, it is called ARGUMENTUM AD VERECUNDIAM, or AD MODESTIAM.

When we expoſe a man to hatred by alleging that his opinion has been held by ſome hereticks or wicked men, calling him a Socinian, a Jacobin, or the like, it is ARGUMENTUM AB INVIDIA DEDUCTUM.

And, laſtly, when an argument is borrowed from any topicks which are ſuited to engage the inclinations or paſſions of the hearers on the ſide of the ſpeaker, rather than to convince their judgments,

this

this is ARGUMENTUM AD PASSIONES, or if it be made publickly, AD POPULUM.

CHAP. III.

Of Sophiſms.

SOPHISMS are falſe arguments that have the appearance of being true.

The moſt remarkable of them are reduced by Logicians to the following heads.

1. IGNORANTIA ELENCHI, or a miſtake of the queſtion. As if, the queſtion being put, *whether exceſs of wine be hurtful to thoſe who indulge in it*, any one ſhould argue, that wine revives the ſpirits, gives a man courage, and makes him more ſtrong and active; and then take it for granted, that the point in debate is

is fully determined. But what, it mi
be anſwered, is all this to the purpo
Wine, drank in moderation, may h
all theſe good effects which you aſcr
to it; but the queſtion is not, what
the effects of wine drank in moderati
but what are the effects of it when dr
to exceſs.

2. PETITIO PRINCIPII, or a ſup
ſition of what is not granted; as,

There is no ſalvation out of the churc
Protestants are out of the church:
Therefore, Protestants cannot be ſave

The minor is here taken for grant
which is by no means to be allowed.

3. A CIRCLE is, when we prove
of the premiſes by the concluſion, and
concluſion by the premiſes.

As if one were to reaſon thus:

The church being infallible, what ſhe teſtifies muſt be believed:

But the church teſtifies, that the ſcriptures are the word of God.

Therefore, that the ſcriptures are the word of God, muſt be believed,

—and on being aſked how it appears that the church is infallible, ſhould undertake to prove it, as follows:

What the ſcriptures teach us, is not to be queſtioned:

But the ſcriptures teach us, that the church is infallible:

Therefore the infallibility of the church is not to be queſtioned.

In this way we might prove any thing.

4. NON CAUSA PRO CAUSA, or the aſſignation of a falſe cauſe: as if any one, when an infectious diſeaſe is imported into a city, ſhould impute the misfortune to the anger of God.

5. FALLACIA ACCIDENTIS; when we argue from what is true by accident, to what is true in the nature of things. So if opium, or the peruvian bark, has been uſed imprudently, or unſucceſsfully, ſo as to do injury; ſome abſolutely pronounce againſt the uſe of the bark, or of opium, on all occaſions, and are ready to call them poiſons.

6. The next ſophiſm borders on the former; and is, when we argue from that which is true in particular circumſtances, to prove the ſame thing true abſolutely and abſtractedly from all circumſtances: this is called, in the ſchools, a ſophiſm A DICTO SECUNDUM QUID, AD DICTUM SIMPLICITER; as,

That which is bought in the ſhambles is eaten for dinner:

Raw meat is bought in the ſhambles:

Therefore raw meat is eaten for dinner.

This

This ſort of ſophiſm has its reverſe, when we argue A DICTO SIMPLICITER AD DICTUM SECUNDUM QUID; or, to expreſs it in Engliſh, from that which is true ſimply and abſolutely, to prove the ſame thing true in all particular circumſtances: as if a traitor ſhould argue from the ſixth commandment, *Thou ſhalt not kill*, to prove that he himſelf ought not to be hanged.

7. There are alſo ſophiſms of COMPOSITION and DIVISION.

A ſophiſm of compoſition is, when we infer any thing concerning ideas in a compounded ſenſe, which is only true in a divided ſenſe; as,

Chriſt made the blind to ſee, and the deaf to hear:

Therefore he performed contradictions.

Two and three are even and odd:

Five are two and three:

Therefore five is even and odd.

A ſophiſm of diviſion is, when we infer the ſame thing concerning ideas in a divided ſenſe, which is only true in a compound ſenſe. As,

Five is one number:

Two and three are five:

Therefore two and three are one number.

Laſtly, Sophiſms ariſe alſo from the ambiguity of words; and indeed ſeveral of the former fallacies might be reduced to this head. As if one ſhould argue thus,

A church is a building of ſtone:

A religious aſſembly is a church:

Therefore a religious aſſembly is a building of ſtone.

Beſides the ſpecial deſcription of true ſyllogiſms and ſophiſms already given, and the rules by which the one are formed

ed and the other refuted; there are theſe two general methods of reducing all ſyllogiſms whatever to a teſt of their truth or falſehood.

1. *One of the premiſes muſt contain the concluſion, and the other muſt ſhew that the concluſion is contained in it.*

For the illuſtration of this, let us take the following example:

Whoſoever is a ſlave to his natural inclinations is miſerable:

A wicked man is a ſlave to his natural inclinations:

Therefore a wicked man is miſerable.

Here it is evident, that the major propoſition contains the concluſion; for, under the general character of *a ſlave to natural inclinations*, *a wicked man* is contained or included; and the minor propoſition declares it: whence a concluſion is evidently

evidently deduced that the wicked man is miſerable.

2. *As the terms in every ſyllogiſm are uſually repeated twice, ſo they muſt be taken preciſely in the ſame ſenſe in both places.*

For the greater part of the miſtakes, which ariſe in forming ſyllogiſms, is derived from ſome little difference in the ſenſe of one of the terms in the two parts of the ſyllogiſm wherein it is uſed.

It is a ſin to kill a man:
A murderer is a man:
Therefore it is a ſin to kill a murderer.

Here the word *kill* in the firſt propoſition ſignifies to kill unjuſtly, or without a law; in the concluſion, it is taken abſolutely for putting a man to death in general; and therefore the inference is not good.

What I am is a man:
You are not what I am:
Therefore you are not a man.

Here

Here *what I am* in the major propoſition, is taken *ſpecially*, for my *nature*; but, in the minor propoſition, the ſame words are taken *individually*, for my *perſon*: therefore the inference muſt be falſe; for the ſyllogiſm does not take the term *what I am* both times in the ſame ſenſe.

He who ſays, you are an animal, ſays true:

But he who ſays, you are a gooſe, ſays, you are an animal:

Therefore he who ſays, you are a gooſe, ſays true.

In the major propoſition the word *animal* is the predicate of an incidental propoſition; which incidental propoſition being affirmative renders the predicate of it particular, according to the third axiom. And conſequently the word *animal* there, ſignifies only *human animality*. In the minor

minor propoſition the word *animal* for the ſame reaſon ſignifies the *animality of a gooſe;* therefore it becomes an ambiguous term, and unfit to build a concluſion upon.

PART IV.

Of Method.

We have now done with the three firſt operations of the mind. There is yet a fourth; which regards the diſpoſal and arrangement of our thoughts in ſuch a manner as that their mutual connection and dependence may be clearly ſeen; and this is what Logicians call METHOD.

In unfolding any part of human knowledge, the relations of things do not always

ys immediately appear, upon compar- them with one another. Hence we re recourſe to intermediate ideas, and means of them are furniſhed with ſe previous propoſitions that lead to : concluſion we are in queſt of. And t ſo happen, that the previous propo- ons themſelves are not ſufficiently evi- nt, we endeavour by new middle terms aſcertain their truth; ſtill tracing things kward, in a continued ſeries, until at gth we arrive at ſome ſyllogiſm where : premiſes are firſt and ſelf-evident prin- les. This done, we become perfectly isfied as to the truth of all the conclu- ns we have paſſed through, in as much they are now ſeen to ſtand upon the n and immoveable foundation of our uitive perceptions. And as we arrived this certainty by tracing our concluſions ckward to the original principles from

which they are deduced; ſo we may at any time renew it by a direct contrary proceſs, if, beginning with theſe principles, we carry the train of our thoughts forward, until they lead us, by a connected chain of proofs, to the very laſt concluſion of the ſeries.

Hence it appears, that, in diſpoſing and putting together our thoughts (either for our own uſe,—that the diſcoveries which we have made may at all times be open to the review of our minds; or for the communicating or unfolding of theſe diſcoveries to others), there are two ways of proceeding, equally within our choice. For we may ſo propoſe the truths relating to any part of knowledge, as they preſented themſelves to the mind in the manner of inveſtigation; carrying on the ſeries of proofs in a *reverſe* order, until they at laſt terminate in firſt principles: or, beginning

ginning with theſe principles, we may take the contrary way; and from them deduce, by a *direct* train of reaſoning, all the ſeveral propoſitions we want to eſtabliſh. This diverſity, in the manner of arranging our thoughts, gives riſe to the two-fold diviſion of method eſtabliſhed by logicians. For method, according to their uſe of the word, is nothing elſe than the order and diſpoſition of our thoughts relating to any ſubject. When truths are ſo diſpoſed and put together, as they were or might have been diſcovered, this is called the *analytic method*, or the *method of reſolution;* in as much as it traces things backward to their ſource, and reſolves knowledge into its firſt and original principles. When, on the other hand, truths are deduced from theſe firſt principles, and connected according to their mutual dependence, in ſo much that the truths

truths firſt in order tend always to the demonſtration of thoſe that follow, this conſtitutes what we call the *ſynthetick method*, or *method of compoſition*. The firſt of theſe has alſo obtained the name of the *method of invention*; becauſe it obſerves the order in which our thoughts ſucceed one another in the invention or diſcovery of truth: the other again is often denominated the *method of ſcience*; in as much as in laying our thoughts before others, we generally chuſe to proceed in the ſynthetick manner, deducing them from their firſt principles.

THE END.